

SEASONAL PERIODICITY OF ALGAL FORMS IN THE AIR OF SHILLONG

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SUMMARY. - During the studies on the aerobiology of Shillong for allergenic pollen and fungal spore (March, 1974 to February, 1976), with the help of a Durham type sampler, the author came across with seven algal forms. They were *Closterium*, *Cosmarium*, *Lyngbya*, *Nostoc*, *Oscillatoria*, *Rivularia* and *Spirogyra*. During 1974-75, *Lyngbya* filament was recorded highest (50%) while *Nostoc* and *Oscillatoria* were recorded lowest (6.67% each) of the yearly total. During 1975-76, *Closterium* was recorded lowest (6.25%) of the yearly total. Among the types identified, *Closterium*, *Rivularia*, *Cosmarium* and *Spirogyra* were new additions for India.

INTRODUCTION

Microscopic terrestrial and freshwater algae occur in the air, but little studied (GREGORY, 1973). Recent evidences have proved that both aquatic and air-borne algae may cause many types of allergic reactions in human beings (GOYAL, 1976; MITTAL et al., 1973 and 1974; REDDI, 1977; TILAK and VISHWE, 1978). In the present paper, the data collected on the seasonal periodicity of algal forms during my studies on the aerobiology of Shillong for allergenic pollen and fungal spore (March, 1974 to February, 1976) are presented.

MATERIAL AND METHODS

A microscope slide (75 mm x 25 mm) with one of its surfaces cleaned and smeared with Vaseline was exposed to atmosphere in a horizontal position by placing in a Durham type shelter on the roof the Physics block building (10.6 meters above ground level), St. Edmund's College, Shillong. After a twenty four hours of exposure, the slide was removed. A portion of the exposed

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surface was stained with lactophenol and aniline blue separately and carefully mounted with a cover slip (18 mm x 18 mm). All the area under cover slip (3.24 sq. cm) was studied. The various algal forms were counted under high power objective by several sweeps and identified. Exposure was made at 3 p. m. 5 times a month at irregular intervals with a total of 120 slides exposures covering 2 years.

RESULTS

During 1974-75, *Lyngbya* filament was recorded highest (50%) while *Nostoc* and *Oscillatoria* were recorded lowest (6.67% each) of the yearly total (table 1).

During 1975-76, *Closterium* was recorded highest (56.25%) while *Spirogyra* filament was recorded lowest (6.25%) of the yearly total (table 1).

DISCUSSION

Seasonal variations were observed in various algal forms in the air except in case of a few such *Phormidium*, *Oscillatoria* and *Chlorococcum* which were observed in all the twelve months studies (MITTAL et al., 1974). Seasonal periodicity was also found in the incidence of a air borne blue green alga, *Lyngbya* (REDDI, 1977). In the present study, seasonal periodicity was observed (table 1).

Both terrestrial and aquatic algae contribute to the population of air-borne algae. The magnitude of this contribution depends upon various factors like climatic conditions, topographical situation, etc. (GOYAL, 1976). In the present study, all algal forms (*Closterium*, *Cosmarium*, *Lyngbya*, *Nostoc*, *Oscillatoria*, *Rivularia* and *Spirogyra*) were found growing in and around Shillong. These forms might be removed by the strong air current to become airborne. A similar observation was noticed earlier (REDDI, 1977).

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TABLE 1
SEASONAL PERIODICITY OF ALGAL FORMS IN THE AIR OF SHILLONG

Algal Forms	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Total	% out of the Grand Total
1974-75														
1. <i>Closterium</i>	—	—	—	—	1	3	—	1	—	1	—	1	7	23.33
2. <i>Lyngbya</i>	2	1	—	3	4	5	—	—	—	—	—	—	15	50.00
3. <i>Nostoc</i>	1	—	—	—	—	—	1	—	—	—	—	—	2	6.67
4. <i>Oscillatoria</i>	—	—	—	1	—	—	—	—	—	—	1	—	2	6.67
5. <i>Rivularia</i>	—	—	—	—	—	—	—	—	—	—	3	1	4	13.33
1975-76														
1. <i>Closterium</i>	4	—	—	—	—	2	—	1	—	—	—	2	9	56.25
2. <i>Cosmarium</i>	—	1	—	—	—	—	1	1	—	—	—	—	3	18.75
3. <i>Rivularia</i>	—	—	—	—	—	—	—	—	—	—	1	2	3	18.75
4. <i>Spirogyra</i>	—	—	—	—	—	—	—	—	—	—	—	1	1	6.25

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